Oracle® Identity Manager

Connector Guide for IBM RACF Standard

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Oracle Identity Manager Connector Guide for IBM RACF Standard, Release 9.0.4

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Preface

This guide provides information about Oracle Identity Manager Connector for IBM RACF Standard.

Audience

This guide is intended for resource administrators and target system integration teams.

Documentation Accessibility

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Related Documents

For information about installing and using Oracle Identity Manager, see the Oracle Identity Manager documentation library.

For generic information about connectors, see *Oracle Identity Manager Connector Concepts*.

The following Oracle Technology Network page provides links to Oracle Identity Manager documentation:

http://www.oracle.com/technology/documentation/oim.html

Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager Connectors documentation, visit Oracle Technology Network at

http://www.oracle.com/technology/documentation/index.html

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New in Oracle Identity Manager Connector for IBM RACF Standard?

This chapter provides an overview of the updates made to the software and documentation for the IBM RACF Standard connector in release 9.0.4.2.

> **See Also:** Release 9.0.4 of this guide for information about updates that were new for release 9.0.4

The updates discussed in this chapter are divided into the following categories:

- Software Updates

  This section describes updates made to the connector software.

- Documentation-Specific Updates

  These include major changes made to the connector documentation. These changes are not related to software updates.

Software Updates

The following sections discuss updates made in releases 9.0.4.1 through 9.0.4.2:

- Software Updates in Release 9.0.4.1
- Software Updates in Release 9.0.4.2

Software Updates in Release 9.0.4.1

The following are software updates in release 9.0.4.1:

- In the "Configuring the Target System" section on page 2-10, the procedure has been revised.
- In the "Importing the Connector XML Files" section on page 2-6, the `IsDebug` parameter has been removed from the list of IT resource parameters.
- In the "Configuring Provisioning" section on page 3-9, the names of the adapters have been modified.
- The `IsDebug` attribute has been removed from the scheduled tasks described in the following sections:
  - Lookup Fields Reconciliation Scheduled Task
  - Submitjob User Reconciliation Scheduled Task

- In the "GetData User Reconciliation Scheduled Task" section on page 3-8, the `isTrusted` attribute has been added to the list of scheduled task attributes.

Software Updates in Release 9.0.4.2

The following are software updates in release 9.0.4.2:

- Using the Connector Installer
- Support for the Arabic Language
- Resolved Issues in Release 9.0.4.2

Using the Connector Installer

From Oracle Identity Manager release 9.1.0 onward, the Administrative and User Console provides the Connector Installer feature. This feature can be used to automate the connector installation procedure.

See "Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later" on page 2-2 for details.

Support for the Arabic Language

Arabic has been added to the list of supported languages.

See "Multilanguage Support" on page 1-4 in the connector guide for more information.

Resolved Issues in Release 9.0.4.2

The following are issues resolved in release 9.0.4.2:

Bug Number	Issue	Resolution
6610577	Group details were not reconciled during group lookup synchronization.	This issue has been resolved. The `LookupType` attribute has been added to the scheduled task for lookup field reconciliation. See "Lookup Fields Reconciliation Scheduled Task" on page 3-5 for more information.
6724858	During a provisioning operation, special characters and spaces could not be entered in the `Department` field on the process form.	This issue has been resolved. The `Department` field can now accept special characters and spaces during provisioning operations.
6614438	During a Create User provisioning operation, the `RXPRNTDT` script was executed multiple times.	This issue has been resolved. The `RXPRNTDT` script is executed only once during a Create User provisioning operation.
6766603	The `RACFNonTrusted.xml` file was not correctly imported when you configured target resource reconciliation.	This issue has been resolved. The `RACFNonTrusted.xml` file is now correctly imported.

Documentation-Specific Updates

The following are documentation-specific updates in release 9.0.4.2:

- Instructions in the "Configuring SSL" section on page 2-11 have been revised.
- In the "Verifying Deployment Requirements" section, changes have been made in the "Target System" row.

1

About the Connector

Oracle Identity Manager automates access rights management, security, and provisioning of IT resources. Oracle Identity Manager connectors are used to integrate Oracle Identity Manager with third-party applications. This guide discusses the procedure to deploy the connector that is used to integrate Oracle Identity Manager with IBM RACF Standard.

This chapter contains the following sections:

Note: In this guide, the term *Oracle Identity Manager server* refers to the computer on which Oracle Identity Manager is installed.

At some places in this guide, IBM RACF Standard has been referred to as the *target system.*

1.1 Reconciliation Module

Reconciliation involves duplicating in Oracle Identity Manager the creation of and modifications to user accounts on the target system. It is an automated process initiated by a scheduled task that you configure.

See Also: The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about reconciliation configurations

Based on the type of data reconciled from the target system, reconciliation can be divided into the following types:

1.1.1 Lookup Fields Reconciliation

Lookup fields reconciliation involves reconciling the following lookup fields of IBM RACF:

- Group
- TSO Procedure
- TSO Account Number

1.1.2 User Reconciliation

User reconciliation involves reconciling the following user attributes in IBM RACF Standard.

Name	Description	Data Type
User General Data		
userid	User ID on the RACF system	String
owner	Owner of the user	String
name	Display name of the user	String
default group	Default group associated with the user	String
operations	Operations privilege	Number
auditor	Auditor privilege	Number
special	Special privilege	Number
grp access	Group access privilege	Number
department	Department name	String
User Group Data		
Groups	Child table	Multivalued attribute
group name	Group name	String
revoke date	Revoke date associated with group	String
authorisation	Authorization privilege	String
User TSO Data		
TSO	Child table	Multivalued attribute
account number	TSO account number	String
procedure	TSO procedure name	String

1.1.3 Reconciled Xellerate User (OIM User) Fields

The following target system fields are reconciled only if trusted source reconciliation is implemented:

- User ID
- First Name
- Last Name
- Organization
- User Type

- Employee Type

1.2 Provisioning Module

Provisioning involves creating or modifying a user's account information on the target system through Oracle Identity Manager. You use the Oracle Identity Manager Administrative and User Console to perform provisioning operations.

> **See Also:** The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about provisioning

For this target system, the following fields are provisioned:

- User Id
- RACF Server
- Password
- Owner
- Name
- Installation Data
- Default Group
- Department
- Operations
- Auditor
- Special
- Group Access
- Group
- Revoke Date
- Authorisation
- Account Number
- Procedure
- Size
- Unit
- Maximum Size

1.3 Supported Functionality

The following table lists the functions that are available with this connector.

Function	Type	Description
Create RACF New User	Provisioning	Creates a user account
Delete a RACF User	Provisioning	Deletes a user account
Name Updated	Provisioning	Changes the name of a user account

Function	Type	Description
Password Updated	Provisioning	Changes the password of a user account
Department Updated	Provisioning	Changes the department of a user account
Default Group Updated	Provisioning	Changes the default group of a user account
Installation data Updated	Provisioning	Changes the installation data of a user account Installation data is a field that can contain any installation, system, or project-related data.
Operations Updated	Provisioning	Changes the Operations attribute of a user account
Special Updated	Provisioning	Changes the Special attribute of a user account
Auditor Updated	Provisioning	Changes the Auditor attribute of a user account
Group Access Updated	Provisioning	Changes the Group Access attribute of a user account
Enables a RACF User	Provisioning	Enables a user account so that the user is able to log in to the IBM Mainframe server
Disables a RACF User	Provisioning	Disables a user account so that the user is not able to log in to the IBM Mainframe server
Connect Group	Provisioning	Connects a user to a group in IBM RACF
Disconnect Group	Provisioning	Removes a user from a group in IBM RACF
Add TSO to a User	Provisioning	Provides Time Sharing Options (TSO) access to a user TSO is one of the subsystems in z/OS in IBM Mainframes.
Remove TSO	Provisioning	Removes TSO access from a user
Reconcile Lookup Field	Reconciliation	Reconciles the lookup fields
Reconcile User Data	Reconciliation	Reconciles user data

See Also: Appendix A for information about attribute mappings between Oracle Identity Manager and IBM RACF Standard.

1.4 Multilanguage Support

The connector supports the following languages:

- Arabic
- Chinese Simplified
- Chinese Traditional
- Danish
- English
- French
- German
- Italian
- Japanese
- Korean

- Portuguese (Brazilian)
- Spanish

Note: IBM RACF does not support the entry of non-ASCII characters. Refer to Chapter 5 for more information about this limitation.

See Also: *Oracle Identity Manager Globalization Guide* for information about supported special characters

1.5 Files and Directories on the Installation Media

The files and directories on the installation media are listed and described in Table 1–1.

Table 1–1 Files and Directories on the Installation Media

File in the Installation Media Directory	Description
`configuration/IBM RACF Standard-CI.xml`	This XML file contains configuration information that is used during connector installation.
`lib/xlUtilHostAccess.jar`	This JAR file contains the class files that are required for provisioning. During connector deployment, this file is copied into the following directory: *OIM_HOME*`/xellerate/JavaTasks`
`lib/xlReconRACF.jar`	This JAR file contains the class files that are required for reconciliation. During connector deployment, this file is copied into the following directory: *OIM_HOME*`/xellerate/ScheduleTask`
`ext/CustomizedCAs.jar`	This file is used to set up an SSL connection between Oracle Identity Manager and the IBM Mainframe server.
`config/InitialLoginSequence.txt`	This file contains the login sequence that the connector uses to connect to the IBM Mainframe server. The login sequence contains the sequence of values to be provided to the Telnet session between the connector and the IBM Mainframe server. These values are required to navigate through the various screens that are part of the TSO login process before reaching the `READY` prompt on the mainframe target server. The values in this file are supplied in the form of variables that hold IT resource values and literals. This machine-dependent file must be altered after deployment.
`config/InputFields.txt`	This file contains values for the connection parameters that are required to connect to the IBM Mainframe server. This file is used with the testing utility.
`config/LogOutSequence.txt`	This file contains the logoff sequence that the connector uses to log off from the IBM Mainframe server. The logoff sequence contains the sequence of values to be provided to the Telnet session between the connector and the IBM Mainframe server. These values are required to navigate through the various screens that are part of the TSO logoff process from the `READY` prompt on the mainframe target server. The values in this file are supplied in the form of variables that hold IT resource values and literals. This machine-dependent file must be altered after deployment.

Table 1–1 (Cont.) Files and Directories on the Installation Media

File in the Installation Media Directory	Description
`scripts/DATAEXTT`	This file uses the decrypted copy of the IBM RACF database to extract user-related records required for reconciliation into temporary files. It is a member of a procedure library on the IBM Mainframe server.
`scripts/DATAUNLD`	This file merges the data from the `SYSTMDAT` and `JCLSRC` files into a temporary file to submit a background job. This background job prepares a decrypted copy of the IBM RACF database and then calls the individual `REXX` code scripts to format the data.
`scripts/JCLSRC`	This file is used to submit the background job for use in reconciliation. It is a member of a procedure library on the IBM Mainframe server. A procedure library is a partitioned dataset containing member files.
`scripts/JOBSTAT`	This file determines the status of a background job used for reconciliation. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RECNLKUP`	This file provides lookup fields data. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXDIFFER`	This file provides differences between the old and new database images. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXDPTADD`	This file copies the user's department data from a temporary file and adds this information to the user's basic data. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXGRPADD`	This file copies the user's group privilege data from a temporary file and adds this information to the user's basic data. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXPRNTDT`	This file carries user reconciliation data from the IBM Mainframe to Oracle Identity Manager. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXPRVADD`	This file copies the user's connect privilege data from a temporary file and adds this information to the user's basic data. It is a member of a procedure library on the IBM Mainframe server.
`scripts/RXTSOADD`	This file copies the user's TSO data from a temporary file and adds this information to the user's basic data. It is a member of a procedure library on the IBM Mainframe server.
`scripts/SYSTMDAT`	This file is used to provide job configuration parameters to the mainframe system.
Files in the `resources` directory	Each of these resource bundles contains language-specific information that is used by the connector. During connector deployment, this file is copied into the following directory: *`OIM_HOME`*`/xellerate/connectorResources` **Note:** A **resource bundle** is a file containing localized versions of the text strings that are displayed on the user interface of Oracle Identity Manager. These text strings include GUI element labels and messages displayed on the Administrative and User Console.
`test/config/config.properties`	This testing utility file holds the input data that you provide for each test.
`test/config/log.properties`	This testing utility file holds log data that is generated after each test.

Table 1–1 (Cont.) Files and Directories on the Installation Media

File in the Installation Media Directory	Description
`test/scripts/RACF.sh` `test/scripts/RACF.bat`	This file is used to run the testing utility.
`xml/RACFnonTrusted.xml`	These XML files contain definitions for the following components of the connector: ■ IT resource type ■ IT resource ■ Resource object form ■ Process definition ■ Process tasks ■ Connector tasks
`xml/RACFTrusted.xml`	This XML file contains the configuration for the Xellerate User (OIM User). You must import this file only if you plan to use the connector in trusted source reconciliation mode.

Note: The files in the `test` directory are used only to run tests on the connector.

1.6 Determining the Release Number of the Connector

You might have a deployment of an earlier release of the connector. While deploying the latest release, you might want to know the release number of the earlier release. To determine the release number of the connector that has already been deployed:

1. In a temporary directory, extract the contents of the following JAR file:

   OIM_HOME`/xellerate/JavaTasks/xlUtilHostAccess.jar`

2. Open the `manifest.mf` file in a text editor. The `manifest.mf` file is one of the files bundled inside the `xlUtilHostAccess.jar` file.

   In the `manifest.mf` file, the release number of the connector is displayed as the value of the Version property.

2

Deploying the Connector

Deploying the connector involves the following steps:

- Verifying Deployment Requirements
- Using External Code Files
- Depending on the release of Oracle Identity Manager that you use, perform the procedures described in one of the following sections:
  - Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later
  - Installing the Connector on Oracle Identity Manager Release 8.5.3.1 Through 9.0.3.1
- Configuring the Oracle Identity Manager Server
- Configuring the Target System
- Configuring SSL

2.1 Verifying Deployment Requirements

The following table lists the deployment requirements for the connector.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3.1 or later
Target system	IBM RACF on z/OS V1.9
External code	The following Host Access Class Library (HACL) class files obtained from IBM Host On-Demand (HOD) version 9.0: ▪ `hoddbg2.jar` ▪ `hacp.jar` ▪ `hasslite2.jar` ▪ `habasen2.jar` ▪ `WellKnownTrustedCAs.class` ▪ `WellKnownTrustedCAs.p12`
Target system user account	Instructions to create an IBM RACF user account with the required privileges are given in the "Configuring the Target System" section on page 2-10. You provide the credentials of this user account while configuring the IT resource. The procedure is described later in this guide. If the user account is not assigned the specified rights, then the "Authentication failure" message is displayed when Oracle Identity Manager tries to exchange data with the target system.

2.2 Using External Code Files

The procedure to copy the external code files involves the following steps:

1. Create a JAR file containing the `WellKnownTrustedCAs.class` and `WellKnownTrusted.p12` files. These files are available as part of the HOD installation in the following directory (assuming HOD is installed in the <../IBM> directory):

   `<IBM/HostOnDemand/HOD>`

   You can use the following command to create the JAR file:

   ```
   jar -cvf  WellKnownTrustedCertificatesCAs.jar  WellKnownTrustedCAs.class
   WellKnownTrusted.p12
   ```

2. Copy the JAR file created in Step 1 along with the external JAR files (`hoddbg2.jar, hacp.jar, habasen2.jar,` and `hasslite2.jar`) available in the HOD installation directory (`<.IBM/HostOnDemand/HOD>`) to the following directory of the Oracle Identity Manager installation:

   OIM_HOME`/xellerate/ThirdParty`

3. Copy the `InitialLoginSequence.txt, LogOutSequence.txt,` and `InputFields.txt` files into the following directory after making changes (if required) according to the target configuration:

   OIM_HOME`/xellerate/ThirdParty`

2.3 Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later

Note: In this guide, the term **Connector Installer** has been used to refer to the Connector Installer feature of the Oracle Identity Manager Administrative and User Console.

Installing the connector on Oracle Identity Manager release 9.1.0 or later involves the following procedures:

- Running the Connector Installer
- Configuring the IT Resource

2.3.1 Running the Connector Installer

To run the Connector Installer:

1. Copy the contents of the connector installation media into the following directory:

   OIM_HOME`/xellerate/ConnectorDefaultDirectory`

2. Log in to the Administrative and User Console by using the user account described in the "Creating the User Account for Installing Connectors" section of *Oracle Identity Manager Administrative and User Console*.

3. Click **Deployment Management**, and then click **Install Connector**.

4. From the Connector List list, select **IBM RACF Standard Connector 9.0.4.2**. This list displays the names and release numbers of connectors whose installation files you copy into the default connector installation directory:

   OIM_HOME/xellerate/ConnectorDefaultDirectory

   If you have copied the installation files into a different directory, then:

   a. In the **Alternative Directory** field, enter the full path and name of that directory.

   b. To repopulate the list of connectors in the Connector List list, click **Refresh**.

   c. From the Connector List list, select **IBM RACF Standard Connector 9.0.4.2**.

5. Click **Load**.

6. To start the installation process, click **Continue**.

   The following tasks are performed in sequence:

   a. Configuration of connector libraries

   b. Import of the connector Target Resource user configuration XML file (by using the Deployment Manager). If you want to import the target system as a trusted source for reconciliation, then see "Configuring the Target System As a Trusted Source" on page 3-3.

   c. Compilation of adapters

   On successful completion of a task, a check mark is displayed for the task. If a task fails, then an X mark and a message stating the reason for failure are displayed. Depending on the reason for the failure, make the required correction and then perform one of the following steps:

   - Retry the installation by clicking **Retry.**
   - Cancel the installation and begin again from Step 1.

7. If all three tasks of the connector installation process are successful, then a message indicating successful installation is displayed. In addition, a list of the steps that you must perform after the installation is displayed. These steps are as follows:

   a. Ensuring that the prerequisites for using the connector are addressed

   Note: At this stage, run the `PurgeCache` utility to load the server cache with content from the connector resource bundle in order to view the list of prerequisites. Refer to "Clearing Content Related to Connector Resource Bundles from the Server Cache" on page 2-7 for information about running the `PurgeCache` utility.

   There are no prerequisites for some predefined connectors.

   b. Configuring the IT resource for the connector

   Record the name of the IT resource displayed on this page. The procedure to configure the IT resource is described later in this guide.

   c. Configuring the scheduled tasks that are created when you installed the connector

   Record the names of the scheduled tasks displayed on this page. The procedure to configure these scheduled tasks is described later in this guide.

8. Copy files from the `scripts` directory on the connector installation media to the *`OIM_HOME`*`/xellerate/RACFScripts` directory.

When you run the Connector Installer, it copies the connector files and external code files to destination directories on the Oracle Identity Manager host computer. These files are listed in Table 1–1.

Installing the Connector in an Oracle Identity Manager Cluster

While installing Oracle Identity Manager in a clustered environment, you must copy all the JAR files and the contents of the `connectorResources` directory into the corresponding directories on each node of the cluster. See "Files and Directories on the Installation Media" on page 1-5 for information about the files that you must copy and their destination locations on the Oracle Identity Manager server.

2.3.2 Configuring the IT Resource

Note: Perform this procedure if you are installing the connector on Oracle Identity Manager release 9.1.0 or later.

You must specify values for the parameters of the `RACF Server` IT resource as follows:

1. Log in to the Administrative and User Console.
2. Expand **Resource Management.**
3. Click **Manage IT Resource**.
4. In the IT Resource Name field on the Manage IT Resource page, enter `RACF Server` and then click **Search**.
5. Click the edit icon for the IT resource.
6. From the list at the top of the page, select **Details and Parameters**.
7. Specify values for the parameters of the IT resource. The following table describes each parameter:

Parameter	Parameter Description
`Admin`	Administrator ID on the IBM RACF server
`AdminCredential`	Password of the admin ID account
`Application`	TSO value to which the admin user logs in. Sample value: `B`
`Host`	IP address or computer name of the mainframe system
`Port`	Port number at which the server is listening
`LoginMacro`	Name and directory path of the file that is used to reach the `READY` prompt on the IBM Mainframe server. Value: *`OIM_HOME`*`/xellerate/ThirdParty/InitialLoginSequence.txt`
`AutoRetry`	AutoRetry feature The value can be `YES` or `NO`. The default value is `NO`.

Parameter	Parameter Description
AmountRetry	Number of retries for the AutoRetry feature Sample value: 2
WaitTime	Wait time between consecutive retries Sample value: 20
IsSecure	Specifies whether or not the connection between Oracle Identity Manager and IBM RACF must be secured by using SSL The value can be YES or NO. The default value is NO. **Note:** It is recommended that you enable SSL to secure communication with the target system.
LogoutMacro	Name and directory path of the file that is used to exit from the READY prompt on the IBM Mainframe server. Value: *OIM_HOME*/xellerate/ThirdParty/LogOutSequence.txt

8. To save the values, click **Update**.

2.4 Installing the Connector on Oracle Identity Manager Release 8.5.3.1 Through 9.0.3.1

Installing the connector on any Oracle Identity Manager release between releases 8.5.3.1 and 9.0.3.1 involves the following procedures:

- Copying the Connector Files
- Importing the Connector XML Files

2.4.1 Copying the Connector Files

The connector files to be copied and the directories to which you must copy them are given in the following table.

See Also: "Files and Directories on the Installation Media" on page 1-5 for more information about these files

File in the Installation Media Directory	Destination Directory
lib/xlUtilHostAccess.jar	*OIM_HOME*/xellerate/JavaTasks
lib/xlReconRACF.jar	*OIM_HOME*/xellerate/ScheduleTask
Files in the ext directory	*OIM_HOME*/xellerate/ThirdParty
Files in the scripts directory	*OIM_HOME*/xellerate/RACFScripts
Files in the resources directory	*OIM_HOME*/xellerate/connectorResources
Contents of the test directory	*OIM_HOME*/xellerate/XLIntegrations/racf
Files in the xml directory	*OIM_HOME*/XLIntegrations/racf/xml

Note: In a clustered environment, copy the JAR files and the contents of the `connectorResources` directory to the corresponding directories on each node of the cluster.

2.4.2 Importing the Connector XML Files

To import the connector XML file into Oracle Identity Manager:

1. Open the Oracle Identity Manager Administrative and User Console.
2. Click the **Deployment Management** link on the left navigation bar.
3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.
4. Locate and open the `RACFnonTrusted.xml` file, which is in the *`OIM_HOME`*`/XLIntegrations/racf/xml` directory. Details of this XML file are shown on the File Preview page.
5. Click **Add File.** The Substitutions page is displayed.
6. Click **Next**. The Confirmation page is displayed.
7. Click **Next.** The Provide IT Resource Instance Data page for the `RACF Server` IT resource is displayed.
8. Specify values for the parameters of the `RACF Server` IT resource. Refer to the following table for information about the values to be specified:

Parameter	Parameter Description
`Admin`	Administrator ID on the IBM RACF server
`AdminCredential`	Password of the admin ID account
`Application`	TSO value to which the admin user logs in. Sample value: `B`
`Host`	IP address or computer name of the mainframe system
`Port`	Port number at which the server is listening
`LoginMacro`	Name and directory path of the file that is used to reach the `READY` prompt on the IBM Mainframe server. Value: *`OIM_HOME`*`/xellerate/ThirdParty/InitialLoginSequence.txt`
`AutoRetry`	AutoRetry feature The value can be `YES` or `NO`. The default value is `NO`.
`AmountRetry`	Number of retries for the AutoRetry feature Sample value: `2`
`WaitTime`	Wait time between consecutive retries Sample value: `20`
`IsSecure`	Specifies whether or not the connection between Oracle Identity Manager and IBM RACF must be secured by using SSL The value can be `YES` or `NO`. The default value is `NO`. **Note:** It is recommended that you enable SSL to secure communication with the target system.

Parameter	Parameter Description
LogoutMacro	Name and directory path of the file that is used to exit from the READY prompt on the IBM Mainframe server. Value: *OIM_HOME*/xellerate/ThirdParty/LogOutSequence.txt

9. Click **Next.** The Provide IT Resource Instance Data page for a new instance of the RACF Server IT resource type is displayed.
10. Click **Skip** to specify that you do not want to define another IT resource. The Confirmation page is displayed.

    See Also: If you want to define another IT resource, then refer to *Oracle Identity Manager Administrative and User Console Guide* for instructions.

11. Click **View Selections**.

    The contents of the XML file are displayed on the Import page. You *may* see a cross-shaped icon along with some nodes. These nodes represent Oracle Identity Manager entities that are redundant. Before you import the connector XML file, you must remove these entities by right-clicking each node and then selecting **Remove**.
12. Click **Import**. The connector XML file is imported into Oracle Identity Manager.

2.5 Configuring the Oracle Identity Manager Server

Configuring the Oracle Identity Manager server involves the following procedures:

Note: In a clustered environment, you must perform this step on each node of the cluster.

- Changing to the Required Input Locale
- Clearing Content Related to Connector Resource Bundles from the Server Cache
- Enabling Logging

2.5.1 Changing to the Required Input Locale

Changing to the required input locale (language and country setting) involves installing the required fonts and setting the required input locale.

You may require the assistance of the system administrator to change to the required input locale.

2.5.2 Clearing Content Related to Connector Resource Bundles from the Server Cache

While performing the instructions described in the "Copying the Connector Files" section on page 2-5, you copy files from the resources directory on the installation media into the *OIM_HOME*/xellerate/connectorResources directory. Whenever you add a new resource bundle in the connectorResources directory or make a change in an existing resource bundle, you must clear content related to connector resource bundles from the server cache.

To clear content related to connector resource bundles from the server cache:

1. In a command window, change to the *OIM_HOME*/xellerate/bin directory.

   Note: You must perform Step 1 before you perform Step 2. An exception is thrown if you run the command described in Step 2 as follows:

   OIM_HOME/xellerate/bin/*batch_file_name*

2. Enter one of the following commands:

   - On Microsoft Windows:

     ```
     PurgeCache.bat ConnectorResourceBundle
     ```

   - On UNIX:

     ```
     PurgeCache.sh ConnectorResourceBundle
     ```

   Note: You can ignore the exception that is thrown when you perform Step 2.

   In this command, ConnectorResourceBundle is one of the content categories that you can remove from the server cache. Refer to the following file for information about the other content categories:

   OIM_HOME/xellerate/config/xlConfig.xml

2.5.3 Enabling Logging

When you enable logging, Oracle Identity Manager automatically stores in a log file information about events that occur during the course of provisioning and reconciliation operations. To specify the type of event for which you want logging to take place, you can set the log level to one of the following:

- ALL

  This level enables logging for all events.

- DEBUG

  This level enables logging of information about fine-grained events that are useful for debugging.

- INFO

  This level enables logging of messages that highlight the progress of the application at a coarse-grained level.

- WARN

  This level enables logging of information about potentially harmful situations.

- ERROR

  This level enables logging of information about error events that may allow the application to continue running.

- FATAL

This level enables logging of information about very severe error events that could cause the application to stop functioning.

- `OFF`

  This level disables logging for all events.

The file in which you set the log level depends on the application server that you use:

- **BEA WebLogic Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*`/xellerate/config/log.properties` file:

     ```
     log4j.logger.ADAPTER.RACFADAPTERLOGGER=log_level
     ```

  2. In this line, replace *`log_level`* with the log level that you want to set.

     For example:

     ```
     log4j.logger.ADAPTER.RACFADAPTERLOGGER=INFO
     ```

  After you enable logging, log information is displayed on the server console.

- **IBM WebSphere Application Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*`/xellerate/config/log.properties` file:

     ```
     log4j.logger.ADAPTER.RACFADAPTERLOGGER=log_level
     ```

  2. In this line, replace *`log_level`* with the log level that you want to set.

     For example:

     ```
     log4j.logger.ADAPTER.RACFADAPTERLOGGER=INFO
     ```

  After you enable logging, log information is written to the following file:

  WEBSPHERE_HOME`/AppServer/logs/`*SERVER_NAME*`/SystemOut.log`

- **JBoss Application Server**

  To enable logging:

  1. In the *JBOSS_HOME*`/server/default/conf/log4j.xml` file, add the following lines if they are not already present in the file:

     ```
     <category name="ADAPTER.RACFADAPTERLOGGER">
        <priority value="log_level"/>
     </category>
     ```

  2. In the second XML code line, replace *`log_level`* with the log level that you want to set. For example:

     ```
     <category name="ADAPTER.RACFADAPTERLOGGER">
        <priority value="INFO"/>
     </category>
     ```

  After you enable logging, log information is written to the following file:

  JBOSS_HOME`/server/default/log/server.log`

- **Oracle Application Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

     log4j.logger.ADAPTER.RACFADAPTERLOGGER=*log_level*

  2. In this line, replace *log_level* with the log level that you want to set.

     For example:

     log4j.logger.ADAPTER.RACFADAPTERLOGGER=INFO

  After you enable logging, log information is written to the following file:

  ORACLE_HOME/opmn/logs/default_group~home~default_group~1.log

2.6 Configuring the Target System

To configure the target system:

1. Note down the Telnet and SSL port numbers specified in the TCP/IP profile file. When you configure the IT resource, you must provide these port numbers as part of the IT resource definition.
2. Using FTP, upload the members (scripts) from the *OIM_HOME*/xellerate/RACFScripts directory to a partitioned dataset with record length 80 and record format Fixed Block.
3. Upload the following file as a flat file or Physical Sequential (PS) file with record length 80 and record format Fixed Block.

   OIM_HOME/xellerate/RACFScripts/SYSTMDAT

   You must provide the following information in the SYSTMDAT file:

   - Name of the IBM RACF database dataset
   - Job header, which forms a part of the background job

     You must ensure that the job header contains the NOTIFY parameter in the following format:

     NOTIFY=&SYSUID

   - Name of the RACF source dataset containing the RACF scripts that you upload to a partitioned dataset on the IBM RACF server (in Step 2 of this procedure).
   - Region size and dynamic resource allocation values
   - Names of 10 temporary PS files that can be created and deleted by the connector
4. Create a user on the IBM Mainframe server with TSO access using an existing user account to which the Special attribute has been assigned.
5. Provide the user with the Special attributes.
   a. Log on to TSO on the IBM Mainframe server using the user account that you use to create the mainframe user.
   b. At the READY prompt, enter the following command:

```
Altuser NewUserIDCreated Special
```

6. Enter the following RACF commands at the READY prompt to provide the mainframe user with the ALTER permission on the directory that is to store the RACF scripts:

```
ADDSD  RACF_Source UACC(NONE)
PERMIT RACF_Source ACCESS(ALTER) ID(new_mainframe_userid)
SETROPTS GENERIC(DATASET) REFRESH
```

7. Set `Msgid` to `ON` for the mainframe user as follows:
   a. Log on to TSO on the IBM Mainframe server using the mainframe user account that you create.
   b. At the READY prompt, enter the following command:

```
profile msgid
```

2.7 Configuring SSL

Note: This is an optional step of the deployment procedure.

The `CustomizedCAs.p12` file is the container for server certificates used for establishing an SSL connection. This file is compressed in the `CustomizedCAs.jar` file. The password for the `CustomizedCAs.p12` file is `hod`. If the IBM Mainframe server has a certificate signed by a CA other than Verisign or Thawte, the root certificate of the CA must be added to the `CustomizedCAs.p12` file for establishing the SSL connection.

The certificate can be added to the `CustomizedCAs.p12` file by using a key management utility that supports `PKCS12` format files. One of the tools that can be used to add the certificate is `GSKkit7.0`. This tool is part of IBM Host On-demand Server version 9.0.

To set up SSL connectivity between Oracle Identity Manager and the IBM Mainframe server:

1. Set the `IsSecure` parameter of the IT resource to `YES`.
2. Configure the target system to enable the required port for SSL connection.
3. If the certificate is issued by Thawte or any other well-known CA, then copy the `WellKnownTrustedCertificatesCAs.jar` file into the following directory:

   OIM_HOME`/xellerate/lib/ThirdParty`

4. Import the certificate in the `CustomizedCAs.p12` file as follows:
   a. Extract the contents of the `CustomizedCAs.jar` file. This file is in the following directory:

      OIM_HOME`/xellerate/lib/ThirdParty`

   b. Add the SSL certificate in the `CustomizedCAs.p12` file.
   c. Create the `CustomizedCAs.jar` file with the updated `CustomizedCAs.p12` and `CustomizedCAs.class` files.
   d. Copy the updated JAR file into the following directory:

OIM_HOME/Xellerate/ThirdParty

3

Configuring the Connector

After you deploy the connector, you must configure it to meet your requirements. This chapter discusses the following connector configuration procedures:

> **Note:** These sections provide both conceptual and procedural information about configuring the connector. It is recommended that you read the conceptual information before you perform the procedures.

- Configuring Reconciliation
- Configuring Provisioning
- Configuring the Connector for Multiple Installations of the Target System

3.1 Configuring Reconciliation

As mentioned earlier in this guide, reconciliation involves duplicating in Oracle Identity Manager the creation of and modifications to user accounts on the target system. This section discusses the following topics related to configuring reconciliation:

- Partial Reconciliation
- Batched Reconciliation
- Configuring the Target System As a Trusted Source
- Configuring the Reconciliation Scheduled Tasks

3.1.1 Partial Reconciliation

By default, all target system records that are added or modified after the last reconciliation run are reconciled during the current reconciliation run. You can customize this process by specifying the subset of added or modified target system records that must be reconciled. You do this by creating filters for the reconciliation module.

Creating a filter involves specifying a value for a target system attribute, which will be used in the query SELECT criteria to retrieve the records to be reconciled. You can specify values for any one or a combination of the following filter attributes:

- Filter Auditor Privilege (Y/N)
- Filter Default Group

- Filter Group Access Privilege (Y/N)
- Filter Name
- Filter Operations Privilege (Y/N)
- Filter Owner
- Filter Special Privilege (Y/N)
- Filter User Id
- Filter Type (AND/OR)

If you want to use multiple target system attributes to filter records, then you must also specify the logical operator (AND or OR) that you want to apply to the combination of target system attributes that you select.

The value of the Filter Type (AND/OR) attribute is applied to the rest of the filter attribute values that you specify. For example, suppose you specify the following values:

- Filter Default Group: `sales`
- Filter User Id: `jdoe`
- Filter Type (AND/OR): `AND`

When this scheduled task is run, records for which the user ID is jdoe and the default group value is sales are reconciled. If you were to specify OR as the value of the Filter Type (AND/OR) attribute, then records that satisfy any one filter criteria are reconciled.

While deploying the connector, follow the instructions in the "Specifying Values for the Scheduled Task Attributes" section on page 3-4 to specify values for these attributes and the logical operator that you want to apply.

3.1.2 Batched Reconciliation

During a reconciliation run, all changes in the target system records are reconciled into Oracle Identity Manager. Depending on the number of records to be reconciled, this process may require a large amount of time. In addition, if the connection breaks during reconciliation, then the process would take longer to complete.

You can configure batched reconciliation to avoid these problems.

To configure batched reconciliation, you must specify values for the following user reconciliation scheduled task attributes:

- `BatchSize`: Use this attribute to specify the number of records that must be included in each batch. The default value is 1000.
- `NumberOfBatches`: Use this attribute to specify the total number of batches that must be reconciled. The default value is `All`.

If you specify a value other than `All`, then some of the newly added or modified user records may not get reconciled during the current reconciliation run. The following example illustrates this:

Suppose you specify the following values while configuring the scheduled tasks:

- `BatchSize`: 20
- `NumberOfBatches`: 10

Suppose that 314 user records were created or modified after the last reconciliation run. Of these 314 records, only 200 records would be reconciled during the current reconciliation run. The remaining 114 records would be reconciled during the next reconciliation run.

You specify values for the `BatchSize` and `NumberOfBatches` attributes by following the instructions described in the "Specifying Values for the Scheduled Task Attributes" section on page 3-4.

3.1.3 Configuring the Target System As a Trusted Source

While configuring the connector, the target system can be designated as a trusted source or target resource. If you designate the target system as a **trusted source**, then during a reconciliation run:

- For each newly created user on the target system, an OIM User is created.
- Updates made to each user on the target system are propagated to the corresponding OIM User.

If you designate the target system as a **target resource**, then during a reconciliation run:

- For each account created on the target system, a resource is assigned to the corresponding OIM User.
- Updates made to each account on the target system are propagated to the corresponding resource.

> **Note:** Skip this section if you do not want to designate the target system as a trusted source for reconciliation.

To configure trusted source reconciliation, you import the `RACFTrusted.xml` file while performing the procedure described in the "Importing the Connector XML Files" section on page 2-6.

1. Import the XML file for trusted source reconciliation, `RACFTrusted.xml`, by using the Deployment Manager. This section describes the procedure to import the XML file.

   > **Note:** Only one target system can be designated as a trusted source. If you import the `RACFTrusted.xml` file while you have another trusted source configured, then both connector reconciliations would stop working.

2. Set the value of the `isTrusted` scheduled task attribute to `Yes` while performing the procedure described in the "Submitjob User Reconciliation Scheduled Task" section on page 3-5.

To import the XML file for trusted source reconciliation:

1. Open the Oracle Identity Manager Administrative and User Console.
2. Click the **Deployment Management** link on the left navigation bar.
3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.

4. Locate and open the `RACFTrusted.xml` file, which is in the *`OIM_HOME`*`/XLIntegrations/racf/xml` directory. Details of this XML file are shown on the File Preview page.
5. Click **Add File**. The Substitutions page is displayed.
6. Click **Next**. The Confirmation page is displayed.
7. Click **Import**.
8. In the message that is displayed, click **Import** to confirm that you want to import the **XML** file and then click **OK**.

3.1.4 Configuring the Reconciliation Scheduled Tasks

When you perform the procedure described in the "Importing the Connector XML Files" section on page 2-6, the scheduled tasks for lookup fields, trusted source user, and target resource user reconciliations are automatically created in Oracle Identity Manager. To configure these scheduled tasks:

1. Open the Oracle Identity Manager Design Console.
2. Expand the Xellerate Administration folder.
3. Select **Task Scheduler**.
4. Click **Find**. The details of the predefined scheduled tasks are displayed.
5. Enter a number in the Max Retries field. This number represents the number of times Oracle Identity Manager must attempt to complete the task before assigning the FAILED status to the task.
6. Ensure that the **Disabled** and **Stop Execution** check boxes are not selected.
7. In the Start region, double-click the **Start Time** field. From the date-time editor that is displayed, select the date and time at which you want the task to run.
8. In the Interval region, set the following schedule parameters:
   - To set the task to run on a recurring basis, select the **Daily**, **Weekly**, **Recurring Intervals**, **Monthly**, or **Yearly** option.

     If you select the **Recurring Intervals** option, then you must also specify the time interval at which you want the task to run on a recurring basis.
   - To set the task to run only once, select the **Once** option.
9. Provide values for the attributes of the scheduled task. Refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-4 for information about the values to be specified.
10. Click **Save**. The scheduled task is created. The INACTIVE status is displayed in the **Status** field, because the task is not currently running. The task is run at the date and time that you set in Step 7.
11. Repeat Steps 5 through 10 to create the second scheduled task.

After you create both scheduled tasks, proceed to the "Configuring Provisioning" section on page 3-9.

3.1.4.1 Specifying Values for the Scheduled Task Attributes

This section provides information about the values to be specified for the following scheduled tasks:

- Lookup Fields Reconciliation Scheduled Task

- Submitjob User Reconciliation Scheduled Task
- GetData User Reconciliation Scheduled Task

3.1.4.1.1 Lookup Fields Reconciliation Scheduled Task You must specify values for the following attributes of the `RACF lookup fields reconciliation` lookup fields reconciliation scheduled task.

Note:

- Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description	Sample Value
`Server`	Name of the IT resource instance that the connector uses to reconcile data	`RACF Server`
`LookupField Name`	Name of the lookup field to be reconciled	The value can be any one of the following: ■ `Lookup.RACF.Groups` ■ `Lookup.RACF.Procedures` ■ `Lookup.RACF.Accounts`
`LookupField Target File`	Name of the file that you create on the target system server to store temporary data **Note:** You must create this file on the target system before you begin using the connector.	Valid file name up to 8 characters in length
`RACF Source Directory`	Name of the directory on the IBM Mainframe server to you copy the RACF scripts while performing the procedure described in "Configuring the Target System" on page 2-10.	`ADTTAR.DT250207.CNTL`
`LookupType`	Specifies the type of lookup reconciliation to be performed	The value can be any one of the following: ■ `Groups` ■ `Procedures` ■ `Accounts`

After you specify values for these task attributes, go to Step 10 of the procedure to create scheduled tasks.

3.1.4.1.2 Submitjob User Reconciliation Scheduled Task Fetching user data from the target system during reconciliation is a two-stage process. In the first stage, user data is extracted from the target system repository and copied to a file that you specify. In the second stage, the contents of the file are brought into Oracle Identity Manager.

The following scheduled tasks are used to submit the job that extracts user data and copies it into a file:

Note: You must specify values for the attributes of one of these scheduled tasks.

- `RACF submit job reconciliation`
- `RACF submit job trusted reconciliation`

The following table describes the attributes of these scheduled tasks:

Note:

- Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description	Value
`Filter Type (AND/OR)`	Specifies whether or not, and in what combination the specified filter conditions are to be used	The value can be any one of the following: ■ `AND` to specify that you want reconciliation to be performed only if all the specified filter conditions are met. ■ `OR` to specify that you want reconciliation to be performed if any one or a combination of the specified filter conditions are met. ■ `NODATA` to specify that you do not want the filter conditions to be used. This is the default value.
`RACF Database Name`	Fully qualified name for the partitioned data set (PDS) containing the IBM RACF database	Sample value: `SYS1.EXAMPLE.RACFBACK`
`System Parameter file Name`	Fully qualified PS name used to upload the `SYSTMDAT` file	Sample value: `ADTTAR.SYSTMDAT`
`Filter User Id`	Specifies the user ID of the user account to be reconciled	The value can be any one of the following: ■ User ID of the user account to be reconciled ■ `NODATA` to specify that this filter is to be ignored. This is the default value.
`Filter Owner`	Specifies the owner of the user accounts to be reconciled	The value can be any one of the following: ■ User ID or group ID of the owner ■ `NODATA` to specify that this filter is to be ignored. This is the default value.
`Filter Name`	Specifies the Name value of the user accounts to be reconciled	The value can be any one of the following: ■ Name value of the user accounts to be reconciled ■ `NODATA` to specify that this filter is to be ignored. This is the default value.

Attribute	Description	Value
Filter Default Group	Specifies the default group of the user accounts to be reconciled	The value can be any one of the following: ■ Default group ID of the user accounts to be reconciled ■ NODATA to specify that this filter is to be ignored. This is the default value.
Filter Operations Privilege (Y/N)	Specifies that user accounts with operations privileges are to be reconciled	The value can be any one of the following: ■ Yes to specify that users with the Operations privilege are to be reconciled ■ No to specify that users with the Operations privilege are not to be reconciled ■ NODATA to specify that this filter is to be ignored. This is the default value.
Filter Special Privilege (Y/N)	Specifies that user accounts with special privileges are to be reconciled	The value can be any one of the following: ■ Yes to specify that users with the Special privilege are to be reconciled ■ No to specify that users with the Special privilege are not to be reconciled ■ NODATA to specify that this filter is to be ignored. This is the default value.
Filter Group Access Privilege (Y/N)	Specifies that user accounts with the Group Access privilege are to be reconciled	The value can be any one of the following: ■ Yes to specify that users with the Group Access privilege are to be reconciled ■ No to specify that users with the Group Access privilege are not to be reconciled ■ NODATA to specify that this filter is to be ignored. This is the default value.
Filter Auditor Privilege (Y/N)	Specifies that user accounts with the Auditor privilege are to be reconciled	The value can be any one of the following: ■ Yes to specify that users with the Auditor privilege are to be reconciled ■ No to specify that users with the Auditor privilege are not to be reconciled ■ NODATA to specify that this filter is to be ignored. This is the default value.
Trial	Specifies whether or not trial reconciliation is to be carried out	The value can be Yes or No.
trialCount	Specifies the number of batches into which the reconciliation data is to be divided for the trial run	The value can be any natural number (1, 2, 3 . . .).
Target System Recon - Resource Object name	Name of the resource object	Resource object name Sample value: RACF Server
Server	Name of the IT resource instance that the connector uses to reconcile data	IT Resource Instance name Sample value: RACF Server
RACF Source Directory	Specifies the IBM RACF directory in which IBM RACF scripts are stored	Sample value: ADTTAR.DT250207.CNTL

Attribute	Description	Value
Target System New User File	Name of the file that IBM RACF uses to store the latest image of the IBM RACF database	Fully qualified PDS name Sample value: adttar.new
Target System Old User File	Name of the file that IBM RACF uses to store the old image of the IBM RACF database For first-time reconciliation, provide a dummy file name. You must ensure that this file does not exist on the IBM Mainframe. From the second reconciliation run onward, the value must be the same as the value of the Target System old User File attribute used during the first reconciliation run.	Fully qualified PDS name Sample value: adttar.oldfile.fri112
IsDebug	Specifies whether or not debugging must be performed	The value can be Yes or No. The default value is No.
isTrusted	Specifies whether or not trusted source reconciliation is to be performed	The value can be Yes or No.
File Path	Name and path of the file that stores information about the task running on the mainframe The next task checks this file to determine the status of the current task.	Sample value: C:/dummyfile.txt

After you specify values for these task attributes, go to Step 10 of the procedure to create scheduled tasks.

3.1.4.1.3 GetData User Reconciliation Scheduled Task The following scheduled tasks are used to fetch user data from the file on the target system server to Oracle Identity Manager:

Note: You must specify values for the attributes of one of these scheduled tasks. You must configure the GetData scheduled task to run after the SubmitJob scheduled task.

- RACF getdata job reconciliation
- RACF getdata job trusted reconciliation

Note:

- Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description	Value
Server	Name of the IT resource instance that the connector uses to reconcile data	IT Resource Instance name For example, RACF Server
RACF Source Directory	Specifies the IBM RACF directory in which IBM RACF scripts are stored	ADTTAR.DT250207.CNTL
Target System Old User File	Name of the file that IBM RACF uses to store the old image of the IBM RACF database For first-time reconciliation, provide a dummy file name. You must ensure that this file does not exist on the IBM Mainframe. From the second reconciliation run onward, the value must be the same as the value of the Target System old User File attribute used during the first reconciliation run.	Fully qualified PDS name Sample value: adttar.oldfile.fri112
Job Name Path	Name and path of the file that stores information about the task running on the mainframe The next task checks this file to determine the status of the current task.	Sample value: C:/dummyfile.txt
Target System Filter File	Specifies the fully qualified name of the PS file that is used to store filter file information	Sample value: adttar.racf08.work
System Parameter file Name	Specifies the fully qualified name of the PS file that is used to upload the SYSTMDAT file	Sample value: adttar.systmdat
Target System Recon - Resource Object name	Name of the resource object	Resource object name Sample value: RACF Server
isTrusted	Specifies whether or not trusted source reconciliation is to be performed	The value can be Yes or No.

After you specify values for these task attributes, go to Step 10 of the procedure to create scheduled tasks.

3.2 Configuring Provisioning

As mentioned earlier in this guide, provisioning involves creating or modifying a user's account information on the target system through Oracle Identity Manager.

Note: You must perform the procedure described in this section if you want to use the provisioning features of Oracle Identity Manager for this target system.

You need not perform the procedure to compile adapters if you have performed the procedure described in "Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later" on page 2-2.

Adapters are used to implement provisioning functions. The following adapters are imported into Oracle Identity Manager when you import the connector XML file:

See Also: The "Supported Functionality" section on page 1-3 for a listing of the provisioning functions that are available with this connector

- `Create new RACF User`
- `RACF User Delete`
- `RACF User Enable`
- `addTsoToRacfUser`
- `setRacfUserPassword`
- `UpdateRacfUserAttribute`
- `connect to group`
- `Connect To Group`
- `removeTso`
- `RACF User Disable`
- `RACF Update Privilege`
- `PrepopulateRacfUsrId`

You must compile these adapters before they can be used in provisioning operations.

To compile adapters by using the Adapter Manager form:

1. Open the Adapter Manager form.
2. To compile all the adapters that you import into the current database, select **Compile All**.

   To compile multiple (but not all) adapters, select the adapters you want to compile. Then, select **Compile Selected**.

   Note: Click **Compile Previously Failed** to recompile only those adapters that were not compiled successfully. Such adapters do not have an `OK` compilation status.

3. Click **Start.** Oracle Identity Manager compiles the selected adapters.
4. If Oracle Identity Manager is installed in a clustered environment, then copy the compiled adapters from the *`OIM_HOME`*`/xellerate/Adapter` directory to the same directory on each of the other nodes of the cluster. If required, overwrite the adapter files on the other nodes.

If you want to compile one adapter at a time, then use the Adapter Factory form.

See Also: *Oracle Identity Manager Tools Reference Guide* for information about using the Adapter Factory and Adapter Manager forms

To view detailed information about an adapter:

1. Highlight the adapter in the Adapter Manager form.
2. Double-click the row header of the adapter, or right-click the adapter.

3. Select **Launch Adapter** from the shortcut menu that is displayed. Details of the adapter are displayed.

3.3 Configuring the Connector for Multiple Installations of the Target System

Note: Perform this procedure only if you want to configure the connector for multiple installations of IBM RACF.

You may want to configure the connector for multiple installations of IBM RACF. The following example illustrates this requirement:

The Tokyo, London, and New York offices of Example Multinational Inc. have their own installations of IBM RACF. The company has recently installed Oracle Identity Manager, and they want to configure Oracle Identity Manager to link all the installations of IBM RACF.

To meet the requirement posed by such a scenario, you must configure the connector for multiple installations of IBM RACF.

To configure the connector for multiple installations of the target system:

See Also: *Oracle Identity Manager Design Console Guide* for detailed instructions on performing each step of this procedure

1. Create and configure one IT resource for each target system installation.

   The IT Resources form is in the Resource Management folder. An IT resource is created when you import the connector XML file. You can use this IT resource as the template for creating the remaining IT resources, of the same IT resource type.

2. Configure reconciliation for each target system installation. Refer to the "Configuring Reconciliation" section on page 3-1 for instructions. Note that you only need to modify the attributes that are used to specify the IT resource and to specify whether or not the target system installation is to be set up as a trusted source.

3. If required, modify the fields to be reconciled for the `Xellerate User` resource object.

When you use the Administrative and User Console to perform provisioning, you can specify the IT resource corresponding to the IBM RACF installation to which you want to provision the user.

4

Testing and Troubleshooting

After you deploy the connector, you must test it to ensure that it functions as expected. This chapter discusses the following topics related to connector testing:

- Testing the Connector
- Troubleshooting

4.1 Testing the Connector

You can use the testing utility to test basic connector functionality.

To use the testing utility:

1. Specify values for the parameters in the config.properties file. This file is in the `OIM_HOME/xellerate/RACF/config` directory.

   These parameters are the same as the parameters of the IT resource.

2. Use the testing utility to perform the following tests:

   Note: The testing utility files are in the *OIM_HOME*`/XLIntegrations/RACF` directory.

   - Create an IBM RACF user.

     In the `config.properties` file, set the action to `CREATE_USER` and provide the user ID value for the `USER_ID` parameter.

     Save the changes and then run one of the following scripts:

     * For Microsoft Windows

       OIM_HOME`\xellerate\XLIntegrations\RACF\scripts\RACF.bat.`

     * For UNIX:

       OIM_HOME`/xellerate/XLIntegrations/RACF/scripts/RACF.sh`

   - Update an IBM RACF user.

     In config.properties file, set the action `UPDATE_USER` and provide the user ID and user attributes. The `attribute_name` parameter can be set to one of the following:

     * `NAME`: To update the name
     * `PASSWORD`: To update the password

The attribute_value parameter is the value of the attribute_name to be changed. For example, if you set attribute_name to NAME, then attribute_value can be set to John.

Save the changes and run the script.

- Delete an IBM RACF user.

  In the config.properties file, set the action to DELETE_USER and provide the user ID value for the USER_ID parameter.

  Save the changes and run the script.

4.2 Troubleshooting

The following table lists solutions to some commonly encountered issues associated with the connector.

Problem Description	Solution
Oracle Identity Manager cannot establish a connection with the IBM Mainframe server	■ Ensure that the IBM Mainframe server is up and running. ■ Check if the user is already logged in. ■ Check if the user has been disabled on the IBM Mainframe server. ■ Check if Oracle Identity Manager is running. ■ Ensure that all the adapters have been compiled. ■ Use the IT Resources form to examine the Oracle Identity Manager record. Ensure that the IP address, admin ID, and admin password are correct. ■ Check the security parameters if an SSL connection is in use.
The Operation Failed message is displayed on the Oracle Identity Manager Administrative and User Console.	■ Ensure that the values for the attributes do not contain delimiter characters (such as white space, commas, apostrophes, and quotation marks). ■ Ensure that the attribute values do not exceed their permitted lengths.
Reconciliation fails	Ensure that the files specified for storing new user data on IBM RACF do not already exist on the server.

5

Known Issues

The following is the known issue associated with this release of the connector:

- **Bug 7341339**

  When you perform an Update User provisioning operation to modify the TSO parameter, the `size`, `unit`, and `maximum size` fields are not prepopulated. You must manually specify values for these fields.

A

Attribute Mappings Between Oracle Identity Manager and IBM RACF

The following table discusses attribute mappings between Oracle Identity Manager and IBM RACF.

Oracle Identity Manager Attribute	IBM RACF Field	Description
userid	USBD_NAME	User ID as taken from the profile name
owner	USBD_OWNER_ID	User ID or group that owns the profile
name	USBD_PROGRAMMER	Name associated with the user ID
default group	USBD_DEFGRP_ID	Default group associated with the user
operations	USBD_OPER	Specifies whether or not the user has the OPERATIONS attribute (Yes/No)
auditor	USBD_AUDITOR	Specifies whether or not the user has the AUDITOR attribute (Yes/No)
special	USBD_SPECIAL	Specifies whether or not the user has the SPECIAL attribute (Yes/No)
grp access	USBD_GRPACC	Specifies whether or not the user has the GRPACC attribute (Yes/No)
department	USWRK_DEPARTMENT	Department for delivery
group name	USCON_GRP_ID	Group to which the user is associated
revoke date	USCON_REVOKE_DATE	Date that the user's association to the group will be revoked
authorization	GPMEM_AUTH	Indicates the authority that the user ID has within the group Valid values are USE, CONNECT, JOIN, and CREATE.
account number	USTSO_ACCOUNT	Default account number
procedure	USTSO_LOGON_PROC	Default logon procedure

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